WHAT IS CLAIMED IS:

1. A method, comprising:

exposing a surface to a first gas composition under conditions sufficient to deposit a layer of a first chalcogenide glass on the surface; and

exposing the layer of the first chalcogenide glass to a second gas composition under conditions sufficient to deposit a layer of a second glass on the layer of the first chalcogenide glass, wherein the second glass is different from the first chalcogenide glass.

2. The method of claim 1, wherein exposing the surface to the first gas composition comprises activating a plasma in the first gas composition

3. The method of claim 2, wherein activating a plasma in the first gas composition comprises exposing the gas to electromagnetic radiation to activate the plasma.

4. The method of claim 3, wherein the electromagnetic radiation comprises microwave radiation.

5. The method of claim 3, wherein the electromagnetic radiation comprises radio frequency radiation.

6. The method of claim 1, wherein exposing the layer of the first glass to the second gas composition comprises activating a plasma in the second gas composition.

7. The method of claim 6, wherein activating a plasma in the second gas composition comprises exposing the gas to electromagnetic radiation to activate the plasma.

8. The method of claim 7, wherein the electromagnetic radiation comprises microwave radiation.

9. The method of claim 7, wherein the electromagnetic radiation comprises radio frequency radiation.

10. The method of claim 1, wherein the second gas composition is different from the first gas composition.

11. The method of claim 1, wherein the first gas composition comprises one or more halide compounds.

12. The method of claim 11, wherein the one or more halide compounds comprises a chloride compound.

13. The method of claim 1, wherein the first gas composition comprises a carrier gas.

14. The method of claim 13, wherein the carrier gas comprises nitrogen.

15. The method of claim 13, wherein the carrier gas comprises a noble gas.

16. The method of claim 15, wherein the noble gas is argon.

17. The method of claim 1, wherein the first gas composition comprises a chalcogen.

18. The method of claim 1, wherein the first gas composition pressure is between about 2 and 20 Torr.

19. The method of claim 1, wherein the second gas composition comprises one or more halide compounds.

20. The method of claim 19, wherein the one or more halide compounds comprises a chloride compound.

21. The method of claim 1, wherein the second gas composition comprises a carrier gas.

22. The method of claim 21, wherein the carrier gas comprises nitrogen.

23. The method of claim 21, wherein the carrier gas comprises a noble gas.

24. The method of claim 23, wherein the noble gas is argon.

25. The method of claim 1, wherein the second gas composition comprises a chalcogen.

26. The method of claim 1, wherein the second gas composition comprises oxygen.

27. The method of claim 1, wherein the second gas composition pressure is between about 2 and 20 Torr.

28. The method of claim 1, wherein the second glass is an oxide glass.

29. The method of claim 1, wherein the second glass is a chalcogenide glass.

30. The method of claim 1, wherein the surface is a surface of a tube.

31. The method of claim 30, wherein the surface is an inner surface of a tube.

32. The method of claim 30, wherein the tube comprises a glass.

33. The method of claim 32, wherein the glass is a silicate glass.

34. The method of claim 32, wherein the tube comprises a polymer.

35. The method of claim 1, wherein the surface is a planar surface.

36. A method, comprising:

introducing a first gas composition into a tube, the first gas composition comprising a first compound that is substantially inert with respect to a first material forming the inner surface of the tube; and

exposing the first gas composition to conditions sufficient to change the first compound into a second compound reactive with the first material and to deposit a layer of a second material on the inner surface of the tube.

37. The method of claim 36, wherein exposing the first gas composition to conditions sufficient to change the first compound into a second compound comprises activating a plasma in the first gas composition.

38. The method of claim 37, wherein activating the plasma comprises exposing the first gas composition to electromagnetic radiation.

39. The method of claim 38, wherein the electromagnetic radiation comprises microwave radiation.

40. The method of claim 38, wherein the electromagnetic radiation comprises radio frequency radiation.

41. The method of claim 36, wherein the first compound comprises oxygen.

42. The method of claim 41, wherein the first compound is nitrous oxide.

43. The method of claim 42, wherein the second compound is oxygen.

44. The method of claim 38, wherein the first material is a glass.

45. The method of claim 44, wherein the glass is a chalcogenide glass.

46. The method of claim 36, further comprising exposing the layer of the first material to a second gas composition under conditions sufficient to deposit a layer of a second material on the layer of the first material, wherein the second glass is different from the first glass.